



## ANOTHER RBEP SUCCESS: Bringing “green machines” to national parks, part 5: biodiesel by the lakeshore

*The Regional Biomass Energy Program (RBEP) promotes increased production and use of bioenergy resources, and helps advance the use of renewable biomass feedstocks and technologies. Historically, the RBEP leverages two nonfederal dollars for every federal dollar it administers.*

### Benefits of Biodiesel

- **Made from used cooking oil — an organic, sustainable resource**
- **Non-toxic to fragile aquatic life**
- **Produces exhaust that is 97% less harmful than the exhaust produced by fossil-based diesel fuel**
- **Reduces waste going into landfills**
- **Creates new markets for renewable energy products**

*“One of our goals is to help educate the visiting public about the impact of using non-sustainable, conventional energy on our natural and cultural resources. As park employees, we believe ‘sustainable is attainable’ and have implemented many sustainable energy practices simply by adjusting our day-to-day operations.”*

Chris V. Case, Facility Manager  
Pictured Rocks National  
Lakeshore



**U.S. Department  
of Energy  
Regional Biomass  
Energy Program**

[www.ott.doe.gov/rbep](http://www.ott.doe.gov/rbep)

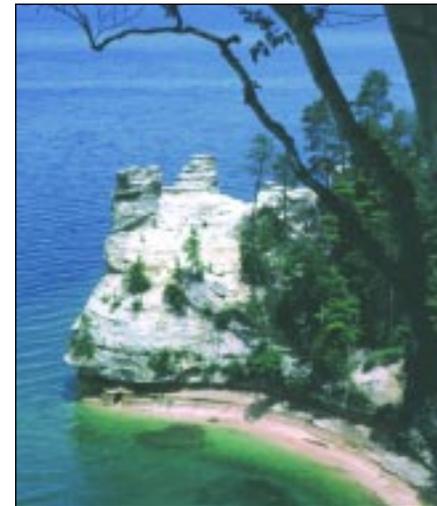
### CHALLENGE

Diesel-powered vehicles are a mainstay at most U.S. national parks, due to their historically greater energy efficiency and reliability. However, the relatively high levels of exhaust emissions from diesel engines can adversely impact the very natural resources that park personnel are mandated to preserve. Under the Green Energy Parks program, the U.S. Department of Interior and the U.S. Department of Energy are jointly implementing sustainable energy projects throughout the National Park system to promote using energy-efficient and renewable-energy technologies and practices, while increasing the use of alternative fuels.

### RBEP SOLUTION

The U.S. Department of Energy's Regional Biomass Energy Program is helping fund efforts at the Pictured Rocks National Lakeshore in Michigan to implement using soy-based biodiesel fuel and soy-based lubricants in park vehicles, watercraft, and other equipment. Pictured Rocks encompasses over 71,000 acres, stretching 42 miles along Lake Superior, with towering sandstone cliffs, beaches, upland hardwood forests, and wetlands. In the spring of 2000, park personnel blended soy-based diesel in the park's diesel fuel storage tanks to create a 20-percent biodiesel fuel (B20).

Since June 2000, all of the park's diesel-powered equipment has been operating on the B20 fuel. At the same time, hydraulic oil in the maintenance shop vehicle lift and all of the park's heavy equipment hydraulic and trans-hydraulic fluids were replaced with soy-based hydraulic fluid. All two-cycle grounds equipment, a 17-foot Boston Whaler patrol boat, and all cross country ski trail groomers have been using soy two-cycle oil. Soy-based penetrating fluid, parts washing fluids, and chassis greases are also now being used.



*Towering sandstone cliffs are part of the natural beauty at Pictured Rocks National Lakeshore (Photos courtesy of National Park Service.)*

## Partners

U.S. Department of Energy  
Regional Biomass Energy Program  
Federal Energy Management  
Program

U.S. Department of the Interior  
National Park Service

Michigan Soybean Office  
Renewable Lubricants  
World Energy

## RESULTS

Pictured Rocks now uses 1,500-2,000 gallons annually of biodiesel fuel in its vehicles, watercraft, and maintenance equipment. In addition, soy hydraulic fluid and/or soy transmission fluid is currently used in the park's dump trucks, backhoe loaders, crawler dozer, grader, utility tractors, tractor mowers, snow machines, outboard motorboat, grounds equipment, and gas engine vehicles.

Three of the park's vehicles are also participating in a soy engine oil test program conducted by Great Lakes Oil in conjunction with the Michigan State University Extension.

Based on the initial success of implementing sustainable soy-based fuels and lubricants, the park plans to acquire three 1-1/4-ton diesel pickup trucks that will also operate on B20 fuel.

New graphics have been added to the vehicles that inform park visitors the equipment is "Soy Powered."



## Web-based Biodiesel Information Resources

Green Energy Parks Program  
<http://www.eren.doe.gov/femp/techassist/greenparks.html>

National Biodiesel Board  
<http://www.biodiesel.org>

Federal Energy Management Program  
<http://www.eren.doe.gov/femp>

Biodiesel Basics Fact Sheet (pdf format)  
<http://www.nrel.gov/docs/fy00osti/28315.pdf>

## BENEFITS

Managers at Pictured Rocks National Lakeshore selected soy-based products because they help the park meet the goals of the Green Energy Parks program, are safer for park employees to handle and use, and are biodegradable in the event of a spill or accidental release.

Employees report that the soy biodiesel burns cleaner and seems to provide slightly more power for the vehicles and equipment. One operator who had previously experienced headaches after operating diesel equipment stated that he has fewer health problems now that the B20 fuel is being used.

## For more information:

Fred Kuzel  
Council of Great Lakes Governors  
35 East Wacker Drive #1850  
Chicago IL 60601

Phone: (312) 407-0177

Fax: (312) 407-0038

E-mail: [fkuzel@cglg.org](mailto:fkuzel@cglg.org)

*This document highlights work sponsored by agencies of the U.S. Government. Neither the U.S. Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the U.S. Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the U.S. Government or any agency thereof.*